

nih record

Becoming Major Cause of Cancer

NCI's Berrington Outlines Risks of Medical Radiation

By Rich McManus

Among the world's developed nations, the United States is notably aggressive in the pursuit of technologies employing radiation for both diagnostic and therapeutic procedures. And while there's no doubt that CT (computed tomography) scans, X-rays and cardiac stress tests (which use radioactive tracers) represent medical progress and save lives, the frequency with which we use them may be increasing cancer rates, to the point that physician-directed radiation is becoming one of the top 10 causes of the disease.

So reported Dr. Amy Berrington de Gonzalez, senior investigator in NCI's Radiation Epidemiology Branch, at a Jan. 11 talk in Wilson Hall titled "Medical Radiation and Cancer Risk: Assessing the Price of Progress."

In the last 15 years of her career, Berrington, a native of England who earned her Ph.D in epidemiology at Oxford, has

SEE MEDICAL RADIATION, PAGE 4



NCI's Dr. Amy Berrington de Gonzalez says medical radiation is becoming a major cause of cancer.

Making a 'Star Wars Leap'

For MLK Program, Wood Conveys 'Passion for Science of Treating Patients'

By Carla Garnett

We already have some of the best cancer fighters inside us, and in the next 5 years or so, we'll know how better to harness and deploy them. That's the message NCI staff clinician Dr. Lauren Wood delivered Jan. 24 at this year's annual salute to Dr. Martin Luther King Jr.



NCI's Dr. Lauren Wood talks cancer vaccines.

An immunologist in NCI's Vaccine Branch, Wood was tapped to give the keynote talk for "Remember! Celebrate! Act! A Day On, Not a Day Off," NIH's MLK observance, which was sponsored by the Office of Equal Opportunity

SEE KING PROGRAM, PAGE 8

Get Connected

STEP Forum Explores Making the Most of Social Media

By Dana Steinberg

Facebook. Twitter. Google+. YouTube. Yammer—the list goes on. Which social media tools are right for your institute and how do you measure their success?

The federal government is encouraging greater use of social media for professional networking. And NIH director Dr. Francis Collins is now tweeting and blogging regularly.

On Jan. 8, a Staff Training in Extramural Programs (STEP) forum titled "NIH and Social Media: You've Got Connections!" offered practical advice on developing and refining social media programs.

Such programs can make NIH research more accessible to its varied audiences and generate productive conversations. But they also take copious effort and staff resources, not to mention the challenge of regularly developing stimulating, timely content. This seminar empha-

SEE SOCIAL MEDIA, PAGE 6



ABOVE • Happiness abounds as, once again, NIH exceeds its goal in the annual CFC campaign. See story on p. 12.

features

1
Epidemiologist Shows that Medical Radiation Exacta a Cost

3
Reed Named NIMHD Clinical Director

9
Gail To Give 2013 Gordon Lecture

12
NIH Exceeds CFC Charity Goal

departments

2
Briefs

10
Digest

11
Milestones



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NIH...Turning Discovery Into Health



NIH Consensus Development Conference on Diagnosing Gestational Diabetes Mellitus

NICHD and the Office of Disease Prevention are sponsoring an NIH Consensus Development Conference: Diagnosing Gestational Diabetes Mellitus on Mar. 4-6.

Gestational diabetes mellitus (GDM) is a condition in which women without previously diagnosed diabetes exhibit high blood glucose levels during pregnancy (especially during the third trimester). GDM is estimated to occur in 1 to 14 percent of U.S. pregnancies, affecting more than 200,000 women annually. It is one of the most common disorders in pregnancy and is associated with an increased risk of complications for the mother and child. Up to half of women who have GDM during pregnancy will develop type 2 diabetes later in life.

To better understand the issues involved in making the diagnosis of GDM, NIH has engaged in a rigorous assessment of the available scientific evidence. This process will culminate in the upcoming conference. Attendees will be able to ask questions and offer comments. After weighing the evidence, a panel will present a draft statement.

All are welcome to attend this free conference. Sign language interpreters will be provided. Those who require reasonable accommodation to participate should contact Deborah Langer at langerdh@od.nih.gov.

For more information about the conference, which will also be videocast live, visit <http://prevention.nih.gov/cdp/conferences/2013/gdm/default.aspx>.

STEP Forum on Body Re-Engineering

The staff training in extramural programs (STEP) committee will present a Science in the Public Health forum on the topic "Body Re-engineering: Leaping Towards the Future," on Tuesday, Mar. 5, from 9 a.m. to noon in Lister Hill Auditorium, Bldg. 38A.

A paralyzed woman directing a robotic arm using her thoughts. An injured veteran operating his wheelchair by using his tongue. We are entering the Age of Bionics, when man and machine are becoming integrated. New technologies are enabling people with severe injuries and disability to improve their quality of life. Experts will present the latest advances in powered robotic and assistive technology devices, intelligent communication, sensors in prostheses and their functional integration with the body.

New Treasury Mandate: Direct Deposit of Pay Required by Mar. 1

Beginning Mar. 1, the Defense Finance and Accounting Service will no longer issue paper checks. Instead, DFAS will pay all employees by direct deposit (electronic funds transfer—EFT). With direct deposit, DFAS sends your pay directly to your bank account. It gives you immediate access to your money the day your payment is due. It also eliminates the risk of lost or stolen checks, forged signatures and identity theft. About 99 percent of DFAS customers currently receive their pay by direct deposit.

To start your direct deposit, you must use myPay (<https://mypay.dfas.mil/mypay.aspx>) or submit a Direct Deposit Form (<http://forms.nih.gov/adobe/timekeeping/SF1199A.pdf>) to the Benefits and Payroll Liaison Branch, Bldg. 31/Rm. B3C23. Don't wait for Mar. 1. Make the switch today!



NIDDK's Rodgers To Keynote Black History Program, Feb. 20

The NIH 2013 Black History Month observance will be held on Wednesday, Feb. 20 from 9:30 to 10:30 a.m. in Lipsett Amphitheater, Bldg. 10. The national theme for Black History Month is "At the Crossroads of Freedom and Equality: 150th Anniversary of the Emancipation Proclamation." NIDDK

director Dr. Griffin Rodgers will be keynote speaker. His presentation is titled, "Type 2 Diabetes and Obesity, and the Major Concerns within the African-American Community."

He will be giving a broad scientific lecture about how NIH/NIDDK research is helping us control and understand type 2 diabetes and its causes (especially obesity) and consequences (especially kidney disease). He will also address communicating what we learn to the public through our messaging and information dissemination programs. The remarks will feature biological, environmental/societal and epidemiological components.

Sign language interpreters will be provided. Individuals who require reasonable accommodation to participate in this event should contact Victoria Gross at (301) 451-0746, through the Federal Relay Service at 1-800-877-8339, or via email at Victoria.Gross@nih.gov.



Reed To Head NIMHD's Clinical Research

Dr. Eddie Reed, an award-winning physician and internationally recognized cancer researcher, has been appointed clinical director of the National Institute on Minority Health and Health Disparities.

"Dr. Reed is a perfect fit as we continue to build our clinical research program into a source of novel concepts, guidance and evidence in health disparities research," said NIMHD director Dr. John Ruffin. "He is a leading oncologist and scientist who is committed to finding solutions to health disparities."

Reed will oversee a combination of studies including outpatient, inpatient, epidemiological, clinical and laboratory-based work. "I am delighted to be joining the team at NIMHD, where I will focus on translating what we learn in the lab into advancements that improve and save lives," said Reed. He will lead the NIMHD effort in enhancing the recruitment and retention of minorities and other underserved populations into clinical trials.

He comes from the University of South Alabama, where he was the Abraham Mitchell distinguished investigator at Mitchell Cancer Institute. He has also carried out clinical research and served as chief of the Clinical Pharmacology Branch at NCI and directed the Mary Babb Randolph Cancer Center at West Virginia University. At the Centers for Disease Control and Prevention, he was director of the Division of Cancer Prevention and Control.

Reed is board-certified in internal medicine and has won many awards for his work in oncology including being listed as a top doctor by *U.S. News and World Report* and winning two Public Health Service Commendation Medals for his research on the cancer-fighting agent paclitaxel (Taxol). He has conducted more than four dozen phase I or phase II clinical trials on anti-cancer agents. Much of his research has focused on DNA damage and repair mechanisms in cancer cells. He has also worked on local, state and national efforts for cancer control and prevention.

He earned his undergraduate degree from Phi-

lander Smith College in Little Rock, Ark., and his medical degree from Yale University School of Medicine. He completed his internship and residency at Stanford University and a fellowship at NCI. He served on the Institute of Medicine's National Cancer Policy Forum from 2005 to 2008. He is also a past member of the National Advisory Council on Minority Health and Health Disparities. 

NINDS's Nath Elected ISNV President

Dr. Avindra Nath, NINDS intramural clinical director, was recently elected president of the International Society for NeuroVirology (ISNV).

ISNV is a non-profit, international forum for researchers and clinician scientists who study neurovirology. The society's purpose is to advance collaboration among scientists in all aspects of neurovirology and related disciplines in order to further knowledge in the area and to promote the clinical application of this knowledge to prevent and treat neuroinflammation and pathophysiology of viral encephalitides (inflammatory brain conditions).

To achieve these goals, the group organizes and sponsors international meetings and produces a bi-monthly publication, the *Journal of NeuroVirology*.

According to Nath—who is one of the ISNV founders and has previously served as its vice president—the field of neurovirology faces many challenges.

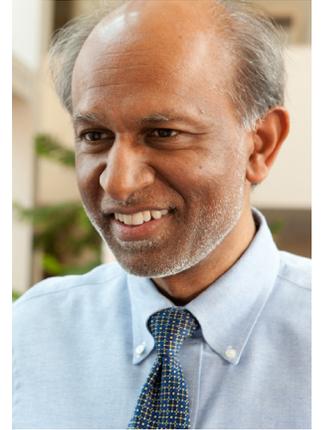
"Currently, besides herpes encephalitis, there is no effective treatment for other causes of viral encephalitis but these are important causes of morbidity and mortality," he said. "With the increasing use of immunomodulatory therapies for cancer and autoimmune diseases, the incidence of viral infections of the brain continues to increase. There have also been several recent outbreaks of CNS infections that include West Nile encephalitis, influenza virus and iatrogenic fungal meningitis."

As ISNV president, Nath plans to engage other neurovirologists to develop clinical practice guidelines for diagnosis and treatment of viral infections of the brain. He also wants the group to develop a web site that provides up-to-date information on nervous system infections for the lay public and researchers and to assist in training researchers in neurovirology by providing travel grants and awards for outstanding research and encouraging mentorship across institutions.

Nath earned his medical degree from Christian Medical College in Ludhiana, India. He completed both a neurology residency and a neuroimmunology fellowship at the University of Texas Health Science Center in Houston and a fellowship in neurovirology at NINDS, working in the Laboratory of Viral and Molecular Pathogenesis.

He left NIH in 1990 to join the faculty of the University of Manitoba in Winnipeg. In 1997, he joined the University of Kentucky faculty. Before returning to NIH, Nath was a professor of neurology and neuroscience and held several leadership positions at Johns Hopkins University School of Medicine. He became NINDS's intramural clinical director in 2011.

"The intramural program at NIH has a strong research program in neurovirology. Last year we launched a multidisciplinary research program on the neuroscience of HIV infection that spans across several ICs," said Nath. Other NIH intramural neuroinfectious disease programs exist on such disorders as progressive multifocal leukoencephalopathy, HTLV-I infection, human herpes virus-6 encephalitis and other herpes viruses infecting the brain, lymphochoriomeningitis virus, cysticercosis, cryptococcal meningitis and undiagnosed encephalitis. — Shannon E. Garnett





MEDICAL RADIATION

CONTINUED FROM PAGE 1

Above:

Berrington (l) chats with NCI's Dr. Christine Berg and NIH deputy director Michael Gottesman before her talk in Wilson Hall.

PHOTOS: ERNIE BRANSON

been able to demonstrate that medical radiation is emerging globally as a major cause of cancer. At NIH for the past half decade, she has participated in large-scale studies proving that there is a downside to our technological hunger for more and better radiation-dependent imaging modalities.

The use of medical radiation “is undoubtedly one of the greatest advances in medicine of the 20th century,” she said. “There’s no doubt that medical radiation saves lives and detects disease early.” But it was evident early on that radiation could itself induce cancer.

In 1902, it became clear that radiation was causing skin cancers in the hands of radiologists, Berrington noted, and by 1931 it was linked to cases of leukemia. In 1944, U.S. radiologists confirmed a link to cancer from medical radiation, and just over a decade later, epidemiologists in the U.K. initiated a cohort study to further define the risk.

Famed Oxford epidemiologists Richard Doll (who became a mentor to Berrington) and Richard Peto estimated, in a 1981 paper, that medical radiation could be responsible for around 0.5 percent of cancer deaths. Berrington learned from Doll that this was a “back-of-the-envelope” calculation; he encouraged her to re-explore the topic, despite a skeptical reception from some of her other colleagues.

It turns out that most of what we know about ionizing radiation and its link to cancer comes from long-term follow-up studies of atomic bomb survivors in Japan, Berrington explained. “We learned that risk is linear with dose, that risk remains elevated through life and that radiation can cause most [types of] cancers. The risk is also higher the younger you were at age of exposure.”

The risks of medical radiation have been proven in a variety of studies in recent decades: cumulative doses of fluoroscopy (chest X-ray) for detection of tuberculosis have been linked to increases in breast cancer; X-rays to detect scoliosis (curvature of the spine) are associated with elevation in breast cancer; and scalp irradiation as a therapy for tinea capitis (fungal infection of the scalp) is linked to cancers of the thyroid and brain.

Berrington did her Ph.D. thesis on “risk projection,” or the proportion of cancer attributable to diagnostic radiation exposure. She estimates that, in countries such as the U.K., where diagnostic exposure is relatively low, only about half a percent of cancers appear attributable to CT scans (CT scans use 10 times the radiation of conventional X-rays). But in countries that are quick to use such testing, such as the U.S., Germany and especially Japan, the percentage rises, respectively, to 1, 1.5 and about 3.5 percent.

In 1980, in the U.S., only about 3 million CT scans were performed, Berrington reported. By 2007, that number rose to 70 million scans.

“For 25 years, we didn’t really know what was happening [with such scans as a potential cause of cancer],” she said.

Since 2000, there has been about a 10 percent annual rise in the use of multidetector CT scans. “We’re not just talking about an increase in volume,” she explained, “but also in dose levels.”

Berrington estimates there will be 29,000 eventual cases of cancer from the CT scans performed in 2007 alone.

While CT scans saw the greatest increase in diagnostic deployment, the number of nuclear medicine cardiac stress tests jumped 9-fold between 1980 and 2008, said Berrington. “Those tests involve 2 to 5 times higher radiation than CT.”

She estimates 7,500 future cancers from a single year’s worth of cardiac stress tests.

A particular worry for Berrington and her colleagues is pediatric CT scans. “And that’s not so much due to volume as to concerns about higher cancer risks and higher radiation doses in this population,” she said.

In a U.K.-NCI CT scan study of more than 200,000 youngsters from more than 100 hospitals, conducted from 1985 to 2002, a 10-year follow-up found 74 leukemias and 135 brain tumors. “These are the most highly radio-sensitive and common childhood cancers,” said Berrington. “There is a clear dose-response relationship. There was a tripling in the risk of leukemias, and almost the same [rise] in the brain. These are highly statistically significant results. And they are consistent with the A-bomb data for leukemias and brain tumors.”

Berrington calculates the absolute (versus relative) risk of cancer due to medical radiation as 1 excess case per 10,000 CT scans.

“This is the first direct evidence of possible cancer risk after pediatric CT scans,” she said. “It is an established carcinogen, there is a dose-response relationship, although the brain cancer risk may be overestimated.”



Berrington takes audience questions on Jan. 11.

Replication studies are already under way in Canada, Australia and Israel, she said. This spring, NCI will host a collaborators' meeting from this international CT

scan pooling project that involves more than 1 million children.

There are already a variety of risk-mitigation programs in effect, with such sponsors as the Institute of Medicine, the American College of Radiology, the World Health Organization and the FDA, Berrington noted, but varying "levels of overuse" around the world concern her. "If we don't change practice and reduce use and dose levels, risks will continue to rise," she warned.

Absent strong criteria for appropriateness, reliance on such alternatives as MRI and ultrasound and especially the avoidance of repeat procedures, Berrington fears that the percentage of cancers due to medical radiation in the U.S. will rise from 1 percent to around 3 percent, "and could become one of the top 5 causes of cancer."

Turning briefly to therapeutic, rather than diagnostic, uses of radiation, she noted that there are some 12 million cancer survivors in the U.S. This population has a 14 percent higher risk of subsequent malignancy than the general population. Berrington says such elevation in risk is "most likely a combination of factors responsible for the first cancer, but also due to treatment for the first cancer."

Examining the proportion of second cancers due to radiotherapy in a population of adults with solid tumors, Berrington found that about 8 percent of such cancers seemed tied to therapy. She calculated the absolute risk as 5 excess cancers per 1,000 patients by 15 years post-therapy.

Berrington hopes that advances in epidemiological modeling techniques—as a way to track the effects of medical radiation—keep pace with new modalities that use even more powerful radiation, including IMRT (intensely modulated radiotherapy) and proton therapy (there were 9 machines introduced in the U.S. in the period 2004-2012; 2013 alone will see 9 more), which can result in neutron exposure, which may involve "possibly a 10 times higher risk" of causing cancer.

"Particularly in the United States, the technology can change rapidly, with corresponding increases in use," Berrington said. She emphasized that "if the test [involving medical radiation] is clinically needed, the risk is justified... We need to assess the balance between risks and benefits." 📍

Porter Named Health Science Policy Advisor for Pain

Dr. Linda Porter recently was named NIH health science policy advisor for pain. The position is one of two created at NIH based on recommendations generated from the 2011 Institute of Medicine report *Relieving Pain in America*. The report was one of several mandates contained in the Patient Protection and Affordable Care Act of 2010.

Porter earned her undergraduate degree in physical therapy from McGill University and a Ph.D. in neuroanatomy from Boston University School of Medicine. Before coming to NIH, she served on the faculty of the Uniformed Services University of the Health Sciences for 15 years. During those years she directed an NIH-funded research program aimed at elucidating mechanisms of sensory-motor integration at the cortical level. She joined NINDS in 2003 as a program director in the systems and cognitive neuroscience cluster.

As the pain policy advisor, Porter will lead or participate in activities and programs of the NIH Pain Consortium and will coordinate NIH's pain research programs in consultation with the consortium's executive committee. She also will serve as the designated federal official for the interagency pain research coordinating committee—an entity established through the Affordable Care Act to address issues relevant to federal pain research programs. Porter will continue to serve as program director for NINDS headache-related grants and develop and support efforts to advance this research area.

The second newly created position is a health science officer for pain who will provide administrative and technical support as well as scientific direction to the efforts of the committee and the consortium. Both posts are located in the NINDS Office of the Director and will support pain research efforts within HHS and other federal agencies.



NIMH's Collins To Give NIH Director's Lecture, Feb. 20

Dr. Pamela Collins, director of both the Office for Research on Disparities & Global Mental Health and the Office of Rural Mental Health Research at the National Institute of Mental Health, will deliver the second of three NIH Director's Lectures as part of the 2012-2013 Wednesday Afternoon Lecture Series. Her talk, "Global Engagement for Mental Health," will be held on Feb. 20 at 3 p.m. in Masur Auditorium, Bldg. 10.



Over the past 15 years, Collins's work has focused on the mental health and psychosocial aspects of the AIDS epidemic in the United States and sub-Saharan Africa. In the U.S., her studies have addressed social stigma related to mental illness, ethnicity and women's HIV risk; the HIV prevention needs of women of color with severe mental illness; and the mental health needs of African immigrants living with HIV. Internationally, she has conducted and evaluated training of health care providers in mental health, HIV/AIDS transmission, prevention and counseling in Latin America and sub-Saharan Africa. Collins's research examined the role of mental health care providers in the development of HIV prevention interventions in psychiatric settings. She continues to study the integration of HIV and mental health services in sub-Saharan Africa.

Collins is a member of the World Health Organization's Mental Health Gap Action Programme Forum. She was one of the editors of the 2011 series in *The Lancet* on global mental health and she is a leader of the Grand Challenges in Global Mental Health initiative. For lecture information and reasonable accommodation, contact Jacqueline Roberts, (301) 594-6747.



SOCIAL MEDIA

CONTINUED FROM PAGE 1

Above, from l: Scott Prince, chief of the Online Information Branch, OCPL, OD, says social media should be part of an overall communication plan.

The STEP forum included (from l) GSA's Justin Herman, Prince, Mac Cullen of Ogilvy Public Relations and Dr. Sally Rockey, NIH deputy director for extramural research.

Cullen argues that behavior change is a good measure of the effectiveness of a social media campaign.

Below: GSA's Herman says, "The government is using social media to engage, share and listen."

PHOTOS: ERNIE BRANSON



sized looking beyond the numbers of followers and instead measuring effectiveness to get the most out of social media campaigns.

NIH has more than 100 Facebook pages and Twitter handles and a host of YouTube channels, podcasts, blogs and more. Thinking of starting a new social media campaign or enhancing an existing one?

"When creating an internal social media policy, have a plan for your IC," said Scott Prince, chief of the OD Office of Communications and Public Liaison's Online Information Branch. He advises integrating that plan into an overall communications strategy that creates consistent messages and measurable goals.

After identifying which social media platforms fit with your institute's mission, Prince counseled, confirm that the provider has a service agreement with HHS and the General Services Administration. Also check out NIH's social media policy guidelines (see sidebar). And don't forget to use the new NIH logo.

Another new resource is the NIH social media collaboration group shared among the ICs. Send information to the group and others will repost, widening your reach.

"The government is using social media to engage, share and listen," said Justin Herman, new media manager at GSA in Washington. In January, GSA announced it adopted fed-friendly terms with Pinterest, an online pin board, yet another way for federal agencies to engage the public.

Herman emphasized collecting social data, which lets users track information, identify issues, make connections and integrate into larger programs.

"Social media should do two things with social data: cut costs and/or measurably improve citizen services," Herman said. "Right now, with budget situations as they are, if you can't justify your program's doing that, perhaps it's time to revisit your strategy."

Many agencies are using performance metrics to understand the impact and numbers behind their social media strategy. Mac Cullen, a digital strategist with Ogilvy Public Relations in Washington, underscored going beyond the numbers and measuring effectiveness.

If someone asks how your social media plan is working, he said, "I don't want you to answer, 'Here's how many re-tweets I've got' or 'Here's how many likes or fans I've got.' I want you to be able to say, 'Here's the behavior we've changed as a result of our social media programs.'"

Define program goals at the outset, Cullen said. Understand what you're trying to achieve and listen to feedback to continually optimize your programs. That way, you can direct time and money

Social Media Toolbox, Resources

Social media links at NIH:

www.nih.gov/subscriptions.htm

Rock Talk blog: <http://nexus.od.nih.gov/all/rock-talk>

NIH social and new media policy: <http://oma.od.nih.gov/manualchapters/management/2809/>

Learn more:

Apps.gov provides a range of free third-party tools with Fed-friendly terms-of-service agreements.

HowTo.gov, hosted by GSA, offers federal employees a simple way to create blogs and use other tools. This site also links to free webinars and other training.

<http://blog.howto.gov/> (A blog about new media in government)

www.howto.gov/training/schedule (Digitalgov University offers free weekly classes to government employees.)



Rockey said her Rock Talk blog offers an opportunity to share information with the research community.

toward what's working.

"Set specific goals for each platform, every time," Cullen said. Soft objectives—increasing awareness or starting a conversation—can be a good start, he said. But hard objectives that are measurable—increasing audience by 15 percent or driving 10,000 downloads of a fact sheet—get to the heart of whether your programs are influencing people's behavior.

Polling also can be useful, Cullen said. Conducting pre- and post-surveys of the same group can measure desired action. Spot surveys on Twitter, Facebook or Tumblr can offer a snapshot of behavior.

Cullen recommends measuring each social media program against reach (how many see the content); sentiment (preference for the desired action, or attitudes toward the agency and/or health campaign) and action (whether the interaction drives the desired action).

One social media success story at NIH is the Rock Talk blog. Dr. Sally Rockey, NIH deputy director for extramural research, runs the popular blog that averages 40,000 page views per month.

Rock Talk blogs about policy development, data on funding and awards, applicant guidance and other news of interest to the biomedical research community.

"You have to take the time and effort so it's going to be meaningful to the community who you're blogging to," said Rockey. "If they lose interest in the blog, all this time and effort is lost."

Rock Talk expands its reach through Twitter, the *Extramural Nexus* update and listservs. Rockey said her blog aims to increase transparency while helping OER to interact with the larger community on a more personal level.

"It's a great opportunity to share information with and hear comments from the research community," said Rockey, who typically posts to the blog weekly. A blog team moderates the comments and even negative ones are accepted.

The blog gets anywhere from 50 to more than 250 comments on its top posts, with discussions picked up by science blogs, the media and others.

Overall, Rockey has received positive feedback about blogging. "Everywhere we go we hear great things," she said. "Individuals who talk to us say 'We read Rock Talk; it's really opened the doors to NIH and the understanding of NIH.'"

Rockey occasionally integrates the professional with the personal. An avid Bruce Springsteen fan, she recounted that she'd tweeted her sadness over the death of Springsteen's saxophonist Clarence Clemons. In that tweet, she cleverly included a link to NINDS and the causes of stroke (which felled Clemons).

In discussing NIH's social media future, Prince noted, "We've got a pretty large footprint here at NIH. We're still trying to navigate the waters...It's an ever-changing medium but I think we're doing a great job to this point and we're only going to continue to grow." 

NIAID Division Names New Therapeutics, Vaccine Officials

NIAID recently announced two new senior appointments in its Division of AIDS. Dr. Sarah W. Read is the division's new Therapeutics Research Program director; she will lead the development and coordination of clinical and preclinical research in new treatments for HIV and



Dr. Sarah W. Read (l) and Dr. Mary Anne Marovich

HIV-related complications and co-infections. Read has been with the program as a medical officer since 2006, overseeing clinical trials, developing funding initiatives, planning workshops and mentoring new medical officers.

Read earned a bachelor's degree in biology and a medical degree at Georgetown University. She completed a residency in internal medicine at Georgetown University Medical Center. She began her career in 2001 as a physician in the Intramural AIDS Program at the Clinical Center and subsequently earned a fellowship in infectious diseases at NIAID. When the fellowship concluded in 2005, Read became an associate clinical investigator in NIAID's Laboratory of Immunoregulation. In 2009, she earned a master of health sciences in clinical research from Duke University.

Dr. Mary Anne Marovich joins the division as new director of the Vaccine Research Program, where she will lead the development and coordination of clinical and preclinical research on HIV vaccines. She comes to NIH from the U.S. Military HIV Research Program (MHRP), where she served as chief of vaccine research and development since 2005. Additionally, Marovich worked as the clinic director for MHRP's Rockville Vaccine Assessment Center, where she led multiple early-stage HIV and non-HIV vaccine clinical trials.

She earned bachelor's degrees in biochemistry and chemistry at Illinois State University and a medical degree at Loyola University of Chicago-Maywood. In 1993, she completed a residency in internal medicine and clinical infectious diseases training at the University of Colorado and earned a diploma in tropical medicine and hygiene from the Royal College of Physicians and Surgeons, London School of Tropical Medicine and Hygiene.

An associate professor of medicine with the Uniformed Services University's department of medicine, Marovich has won several honors for academic and teaching excellence.



KING PROGRAM

CONTINUED FROM PAGE 1

Above, from 1:

Wood and NIH deputy director for intramural research Dr. Michael Gottesman chat before her lecture at the 2013 King observance.

Wood receives a framed program poster from OEODM's Margareth Bennett and FIC's Dexter Collins.

Wood, also a captain in the PHS, greets fellow Commissioned Corps member retired RADM Richard Wyatt, deputy director of NIH's Office of Intramural Research.

PHOTOS: BILL BRANSON

and Diversity Management in collaboration with the NIH Black Employment Program committee.

“Dr. King recognized the power of service to strengthen communities and achieve common goals,” said NIH principal deputy director Dr. Lawrence Tabak, in welcoming remarks. “Through his words and example, Dr. King challenged individuals to take action and lift up their neighbors and communities through service. Dr. King’s birthday provides an opportunity for each of us to remember and honor the outstanding contributions that the civil rights leader has given to all of us, has given to the world. At NIH we can all be proud that the work we do here is a service to mankind.”

Work done at NIH—specifically intramural clinical science showing promise against cancer and HIV—was the focus of Wood’s lecture.

“I hope as a physician-scientist conducting clinical research in the Intramural Research Program that I’ll be able to communicate some of my passion for the science of what I do—treating patients who are resisting cancer and HIV infection—and what we’re trying to do to push the edge of the scientific envelope and come up with new treatment interventions that will make major differences in the lives of individuals,” Wood said.

She proceeded to offer what she later called “Immunology 101,” a short course on how the body reacts to invaders, both foreign and domestic. Her enthusiasm for the topic evident, she seasoned her lecture with humor and slides for the lay public.

Showing several images of computer network rooms with colorful cords coiled—and sometimes tangled—throughout, Wood said every time she passes by an open IT closet, she is reminded of the human immune system.

“That is really what our immune system is like in a nutshell,” she said. “This snapshot with all of these complex interactions...In the end, even though we know all about these detailed compo-

nents of the organs, detailed components about the cells and detailed components about how the cells talk to each other using different messengers, it’s still a black box.”

Wood said the main problem in disorders of the immune system is that there is either too little immunity—defenses are outnumbered or disabled in some way—or too much immunity—defenses begin attacking the wrong targets, namely the body itself.

One of the biggest challenges in her research, she noted, is finding ways to make the immune system identify cancer as a harmful intruder. Our immune system often sees cancer cells as “self” and not an “enemy.” That makes employing the immune system to attack the cancer all the more challenging.

The Vaccine Branch develops vaccines and therapies that “harness the immune response to control, eradicate or prevent cancer and HIV infection.” Basically, Wood’s research aims to galvanize and strengthen the body’s own defenses to recognize and stop harmful tumors from developing and growing.

Why cancer vaccines? “Because,” she said, “we know inherently that the immune system is capable of controlling and eliminating cancer...In the next 5 years, the greatest advances in cancer treatment are going to be in the field of cancer immunotherapy and immunotherapeutic vaccines. That’s really going to take us a *Star Wars* leap into the future.”

Wood and colleagues conduct “first-in-human” trials in an effort to determine first whether the therapy is safe, then whether the treatment stimulates an immune response and finally whether that immune response fights the cancer or HIV.

She contrasted vaccine therapies with traditional chemotherapy.

Chemotherapy, she explained, is like dropping



Following the lecture, Wood answers questions and talks with audience members.

a bomb: “There’s massive destruction,” she said. “There’s also some civilian casualties,” that is, damage to normal tissue. The effects of immune-based therapies, on the other hand, are indirect and often delayed. First they must stimulate an immune response and in turn, that immune response must have an anti-tumor effect. Cancer vaccines, she noted, are less damaging to healthy cells, cause fewer side effects and are generally well tolerated.

A novel and potentially promising immunotherapy is the TARP peptide cancer vaccine. Wood’s group is currently investigating the treatment in prostate cancer patients with PSA biochemical recurrence. TARP (TCR γ -alternative reading frame protein)—discovered by NCI veteran investigator Dr. Ira Pastan—is found in more than 90 percent of prostate cancers and about 50 percent of breast cancers.

So far in early studies, the TARP vaccine has passed the three main tests for an active immunotherapy: it’s safe, it sparked the immune system to respond in the majority of patients and vaccination appears to be slowing tumor growth rates by about 50 percent.

“These results have been very encouraging, leading us to plan a new study that will examine a second generation TARP vaccine with more peptides that covers the whole TARP protein, probably in the late summer,” she said.

Reminding the audience that MLK Day is a time to serve others, Wood ended with two parting thoughts: “One of the ways I think people can honor Martin Luther King is to consider becoming a registered bone marrow donor,” she said, citing the need for more diversity in the donor population.

Finally, she encouraged participation in clinical trials for those resisting cancer. “It’s really through clinical research that we are able to move the therapeutic interventions forward and ensure that these advances are available to everyone,” she concluded.

The entire MLK observance is archived for NIH’ers online at <http://videocast.nih.gov/summary.asp?Live=12439&bhcp=1>. 

Gail To Give Gordon Lecture, Feb. 27

Dr. Mitchell H. Gail, senior investigator in NCI’s Division of Cancer Epidemiology and Genetics, will give the 2013 Robert S. Gordon, Jr., Lecture on Wednesday, Feb. 27 from 3 to 4 p.m. in Masur Auditorium, Bldg. 10. His topic will be “Using Risk Models for Breast Cancer Prevention.”



Epidemiologic studies have established several risk factors for breast cancer, such as family history, age at first live birth, biopsy findings and mammographic density. These factors can be combined with information on breast cancer incidence rates to construct models of absolute risk of breast cancer, which is the chance that a woman with certain risk factors will develop breast cancer over a defined age interval.

Absolute risk is useful for counseling women and in public health applications. In counseling, absolute risk estimates provide realistic perspective and thereby inform decisions such as whether or not to begin screening mammography. Absolute risk estimates are also useful in a formal weighing of risks and benefits to decide whether to take a preventive intervention, such as chemoprevention.

Some applications of risk models in public health include: designing chemoprevention trials; implementing “high risk” prevention strategies that focus only on women at highest risk; assessing the potential of a preventive intervention to reduce absolute breast cancer risk in the population; and using risk estimates to allocate prevention resources under cost constraints.

Gail will review the usefulness of risk models in these applications and the potential of additional risk factors, such as single nucleotide polymorphisms, to improve performance.

Gail received an M.D. from Harvard Medical School in 1968 and a Ph.D. in statistics from George Washington University in 1977. He joined NCI in 1969, and served as chief of the Biostatistics Branch from 1994 to 2008.

He is a fellow and former president of the American Statistical Association, a fellow of the American Association for the Advancement of Science and a member of the Institute of Medicine of the National Academy of Sciences.

Gail has received the Spiegelman Gold Medal for Health Statistics, the Howard Temin Award for AIDS Research and the Nathan Mantel Lifetime Achievement Award. Recently, he became chair-elect of the AAAS section on statistics.

Registration is not required; seating is on a first-come, first-served basis. To watch the seminar online, visit <http://videocast.nih.gov>. Both the seminar and the videocast are free and open to the public.

Sign language interpreters can be provided. Individuals who need reasonable accommodation to participate should contact Jacqueline Roberts, robertsjm@od.nih.gov, (301) 594-6747 or the Federal Relay (1-800-877-8339).

Next-Generation CT Scanner Provides Better Images with Minimal Radiation

A new computed tomography (CT) scanner substantially reduces potentially harmful radiation while still improving overall image quality. NIH researchers, along with engineers at Toshiba Medical Systems, worked on the scanner. An analysis of data on 107 patients undergoing heart scans found that radiation exposure was reduced by as much as 95 percent compared to the range of current machines, while the resulting images showed less blurriness, reduced graininess and greater visibility of fine details.

The machine recently received approval by the Food and Drug Administration, but more studies will be needed before it can be adopted for wide clinical use.

“CT scans are a great diagnostic tool for heart disease because we can obtain high-resolution 3-D images of the heart quickly and non-invasively,” said coauthor Dr. Andrew Arai, chief of the Cardiovascular and Pulmonary Branch at the National Heart, Lung, and Blood Institute. “However, the benefits of CT have been tempered by concerns over the radiation required to achieve these images. With this next-generation device, we are close to achieving the best of both worlds.”

The study, published Jan. 22 online in the journal *Radiology*, was funded by NHLBI. The CT machine was provided by Toshiba Medical Systems through a cooperative research agreement.

NIH Study Advances Understanding of Movement Control

Voluntary movements involve the coordinated activation of two brain pathways that connect parts of deep brain structures called the basal ganglia, according to a study in mice by researchers at the National Institute on Alcohol Abuse and Alcoholism. The findings, which challenge the classical view of basal ganglia function, were published online in *Nature* on Jan. 23.

“By improving our understanding of how the basal ganglia control movements, these findings could aid in the development of treatments for disorders in which these circuits are disrupted, such as Parkinson’s disease, Huntington’s disease and addiction,” says NIAAA acting director Dr. Kenneth Warren.

The predominant model of basal ganglia function proposes that direct and indirect pathways originating in a brain region called the striatum have opposing effects on movement. Activity of neurons in the direct pathway is thought to promote movement, while activity in the indirect pathway is thought to inhibit movement. Newer models, however, suggest that co-activation of these pathways is necessary to synchronize basal ganglia circuits during movement.

Scientists devised a new approach for measuring the activity of neurons deep within the brain during complex behaviors. Their technique uses fiber optic probes implanted in the mouse brain striatum to measure light emissions from neurons engineered to glow when activated.

Using this new approach, the researchers detected neural activity in both the direct and indirect pathways when mice performed a bar-pressing task. No such activity was detected when the mice were inactive.

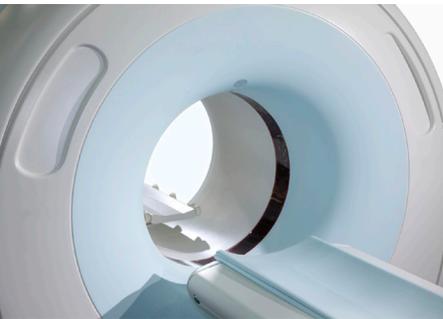
Candidate Dengue Vaccine Shows Promise in Early Stage Trial

A candidate dengue vaccine developed by scientists at NIH has been found to be safe and to stimulate a strong immune response in most vaccine recipients, according to results from an early stage clinical trial sponsored by the National Institute of Allergy and Infectious Diseases. The trial results appeared in the Jan. 17 issue of the *Journal of Infectious Diseases*.

Dengue fever, prevalent in many tropical and subtropical regions of the world, is caused by any of four related viruses—DENV-1, DENV-2, DENV-3 and DENV-4—that are transmitted to humans by *Aedes* mosquitoes. The World Health Organization estimates that every year, 50 million to 100 million cases of dengue occur worldwide, resulting in 500,000 hospitalizations of patients with severe disease, many of them in children.

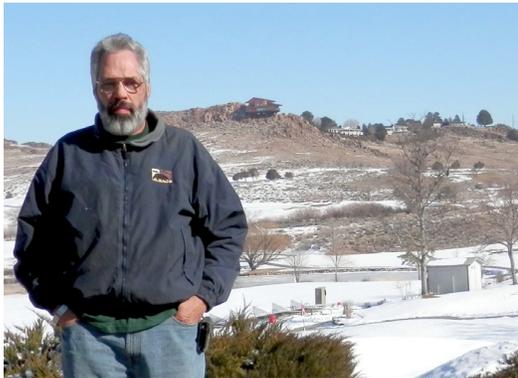
Infection with one dengue virus results in immunity to that specific virus but not to the other three. Research shows that the likelihood of severe disease increases when a person is subsequently infected with a different dengue virus. This observation suggests that the ideal dengue vaccine would be tetravalent—that is, protective against all four dengue viruses.

“The global burden of dengue is enormous—and it is growing,” said NIAID director Dr. Anthony Fauci. “We are cautiously optimistic about these recent clinical trial results with this candidate tetravalent vaccine developed at NIAID; however, much more work still needs to be done.”



An example of a computed tomography scanner

milestones



James Gibson, standing by the golf course near his new home in Nevada, looks forward to golfing once the snow melts.

Grants Assistant Extraordinaire Gibson Retires After 32 Years at NIGMS

James Gibson, a long-time extramural grants assistant at NIGMS, retired in December 2012.

Among his varied administrative duties were handling correspondence in grant files and processing the receipt and referral of grant applications. He recalls that his job underwent a major shift beginning in 2008, with the transition from paper to electronic files.

"I liked the transition to electronic—no more papercuts," he quipped. Instead, he was "doing emails by the thousands." Fortunately, he enjoys correspondence.

Gibson was known for lending a hand whenever help was needed. In 1994, an ice storm struck just prior to the January meeting of the NIGMS advisory council. Gibson was one of the only employees to make it in. While others were stranded at home or stuck in traffic, Gibson prepared the room for the meeting.

Gibson started his federal career in 1976 at the Bureau of Community Health Centers. When the bureau was abolished in 1980, he joined NIGMS, preceding all but one current NIGMS employee.

During his career, he won more than a dozen awards, including the NIH Award of Merit for "exemplary acts of helpfulness supporting the mission and administrative functions of the National Institute of General Medical Sciences." This award is the highest honor granted by an IC director.

"He was totally devoted to his work and to NIGMS," said Dr. Michael Martin, formerly deputy director of NIGMS's Division of Extramural Activities and Gibson's supervisor. "His level of knowledge about the details of his work was extraordinary. As far as I'm concerned, he was one of a kind in terms of managing and organizing all the paperwork associated with grant files so that nothing got lost or mislaid. Ever."

Gibson is already set up for the next phase of his life. He and his wife moved to Sparks, Nev., where she started a new job. Once he's settled in, Gibson plans to look for work too, starting with Amazon.com, which has a facility near his home. There's also the golf course down the road, which is currently open, despite the snow. And Reno isn't far.

Gibson is looking forward to "not worrying about getting up at 4 a.m. to go to work" and not having to drive on the Beltway. He also plans to play golf, bowl in a league and travel around the country (including Hawaii) to see his nieces, nephews and 11 grandchildren.

NCI Alumnus Berard Mourned

Dr. Costan W. Berard, who had been a pathologist at the National Cancer Institute, died on Jan. 5 at age 80.

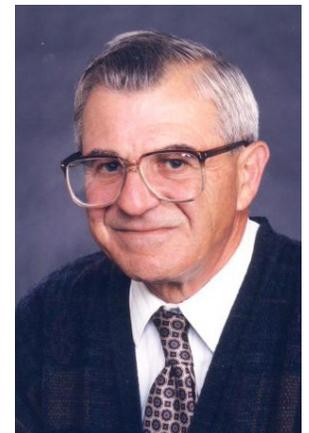
A native of Cranford, N.J., he attended Princeton University, graduating first in his class in 1955. His oratorical skills first led him to consider a career in law; however, he chose instead to study medicine at Harvard Medical School, graduating *cum laude* in 1959. Following an internship at Strong Memorial Hospital in Rochester, N.Y., Berard served at Walter Reed Army Institute of Research. His experiences at WRAIR led him to study pathology rather than surgery, which he had initially considered.

In 1963, Berard came to NCI, where he made his mark in pathology and hematopathology. As chief of the hematopathology section from 1970 to 1980, he established close collaborations with colleagues who revolutionized the treatment of malignant lymphoma and Hodgkin's disease. In addition, he had the foresight to see that advances in modern immunology would alter forever the way in which pathologists would classify malignancies of the immune system.

At NCI, he assembled a team of younger pathologists who pursued translational studies of malignant lymphomas using many advances from the basic sciences. The revolutionary changes in immunology had a profound impact on the classification of lymphoma, which was in a state of flux in the 1970s. Berard recognized the clinical need for a workable, user-friendly classification of malignant lymphomas. As NCI project officer, he led the multi-institutional NCI-funded study that published a working formulation in 1982. Originally intended as a stop-gap measure, it was widely used both in clinical practice and clinical trials for the next decade.

From 1980 to 1997, Berard was chairman of the department of pathology and laboratory medicine at St. Jude Children's Research Hospital in Memphis.

He is survived by two daughters and one granddaughter. 🕯



\$2.6 Million in Donations
NIH Surpasses CFC Goal

Congratulations are due to all NIH staff. The theme of this year's Combined Federal Campaign was hope, and employees provided that—with remarkable generosity—to thousands of people in the Washington, D.C., area and beyond.

In the 2012 campaign, NIH employees far exceeded the agency's goals, raising more than \$2.6 million to support more than 4,500 participating charities. The NIH contributions will go a long way to help these organizations in their many vital roles, from providing basic necessities every day or during extraordinary events like superstorm Sandy to protecting the environment or human rights worldwide.

NIH director Dr. Francis Collins said he was delighted and gratified, but not really surprised, by the NIH response. "With our history of charity and our understanding about hope through research, I knew that we would do everything we could to reach out to people in need," he said.

The success of the recent campaign, led by the National Institute on Aging, depended heavily on the efforts of hundreds of keyworkers and coordinators across the institutes. They were the on-the-ground team encouraging staff to become involved in the campaign. "These NIH employees were the heart of the effort," said NIA director Dr. Richard Hodes. "What they have done will make a huge difference in the lives of others."

In the last weeks of the campaign, NIH continued to show its creativity and commitment in a series of fun—and fundraising—events, which featured visits by charities to talk about what they do. At the NIH/CFC Fernwood-Rockledge-Democracy



Customers at the Neuroscience Center's dessert fair eye goods for sale.



A member of Hero Dogs shows affection to a guest at the Neuroscience Center CFC event.

Fair, the Center for Information Technology Band performed valiantly in cold weather. CFC Dessert Week, at various NIH buildings beyond the Bethesda campus, attracted many employees with a sweet tooth. And there was a special NIH Superstorm Sandy Charity and Dessert Fair in the Clinical Center, which focused on charities with a strong role in helping those devastated by the storm's floods and winds.

In addition, several NIH'ers entered—and a few received received honorable mention—in the HHS CFC Lyric Writing Contest, hoping that Collins would put their words to song. That distinction eventually went to Gary Allen of the Administration for Children and Families, whose poem "We Never Dream Alone" is sung by Collins at <http://cfc2012.hhs.gov/contest.asp>.



Clockwise, from above: NIA's Patrick Shirdon drops in on the charity dessert fair held at Executive Blvd. NIA's Christine Brake (r) pays a visit to the Manna Food Center table, manned by the organization's development coordinator Therese Lampe. The 2012 CFC Catalog of Caring was on display at a fundraiser for Superstorm Sandy, held in the South Lobby of Bldg. 10.

